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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,786	12/04/2003	Duck Young Jung	SUN-0034	6887

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CANTOR COLBURN, LLP  
55 GRIFFIN ROAD SOUTH  
BLOOMFIELD, CT 06002

EXAMINER
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PETERSON, CHRISTOPHER K

ART UNIT	PAPER NUMBER
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2622

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/727,786

Applicant(s)

JUNG, DUCK YOUNG

Examiner

Christopher K. Peterson

Art Unit

2622

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 June 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Amendment***

1. The amendment filed on June 4, 2007 has been entered and considered by examiner. Claims 1 - 5 have been amended. Claims 1 – 8 are pending.

### ***Response to Arguments***

2. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection.

In regards to claims 1 and 5, the Applicant has amended the claims to include the limitation of "...a variable gain amplifier for **variably** amplifying output signals...". The applicant argues that Ejima (US Patent # 6,327,423) reference does not teach nor suggest a variable gain amplifier for variably amplifying output signals (Page 5 and 6). Specifically, noting the Ejima reference does not teach this new limitation, but Hata (US Patent # 6,721,006) does teach a variable gain amplifier for variably amplifying output signals (Col. 2, line 62 – Col. 3, line 7). The Examiner believes that Fig. 1 of Hata clearly shows the variable gain amplifier.

### ***Claim Rejections - 35 USC § 103***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

4. Claims 1, 2, 5, and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (US Patent # 5,867,213) in view of Hata (US Patent # 6,721,006).

As to claim 1, Ouchi teaches an image signal processing system comprising:

- an image sensor (2) for receiving an image of a subject in a light form under the control of a shutter control signal to generate analog signals (Col.3, lines 16 – 40);
- a first A/D converter (6) for receiving the output signals of the variable gain amplifier and converting the received output signals into digital signals (Col.3, lines 16 – 40);
- a second A/D converter (21) for receiving the output signals of the image sensor and converting the received output signals into the digital signals (Col. 5, lines 6 – 21); and
- an image data processor (7) for receiving the output signals of the first A/D converter (6) and the output signals of the second A/D converter (21) to find a movement value and the shutter control signal (Col. 6, line 37 – 48).

Ouchi does not teach a variable gain amplifier for amplifying output signals of the image sensor under the control of a gain control signal to maximize dispersion of the analog signals. Hata teaches a variable gain amplifier (105) for amplifying output signals of the image sensor (103) under the control of a gain control signal to maximize dispersion of the analog signals (Col. 2, line 62 – Col. 3, line 7).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a variable gain amplifier for amplifying

output signals of the image sensor under the control of a gain control signal to maximize dispersion of the analog signals taught by Hata to the imaging device of Ouchi, because control method for the same which can prevent generation of error in the timing for starting the control when a CPU is utilized to decide the timing for starting the control of an object (Col. 1, lines 46 - 67).

As to claim 5, this claim differs from claim 1 only in that the limitation "a direct current offset controller" is additionally recited. Hata teaches a direct current offset controller (104) (Col. 2, line 58 – Col. 3, line 7).

As to claim 2, Ouchi teaches the image signal processing system as claimed in claim 1, wherein the shutter control signal is generated by using the output signals of the second A/D converter (21) (Col. 4, lines 48 – Col. 5, line 5).

As to claim 6, this differs from claim 2 only in that claim 2 is an apparatus claim whereas claim 6 is a method. Thus claim 6 is analyzed as previously discussed with respect to claim 2 above.

5. Claims 3 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (US Patent # 5,867,213) in view of Hata (US Patent # 6,721,006) as applied to claims 1 and 5 above, and further in view of Shiga (US Patent Pub # 2005/0062874).

As to claim 3, Ouchi and Hata teach the limitation "variable gain amplifier". Ouchi and Hata do not teach a variable gain amplifier is a sample-and-hold amplifier architecture. Shiga (see fig. 1) teaches a variable gain amplifier (4) as a sample-and-hold amplifier architecture. Therefore, it would have been obvious to one of ordinary

Art Unit: 2622

skill in the art at the time the invention was made to have provided a variable gain amplifier with a sample-and-hold amplifier architecture taught by Shiga to the variable gain amplifier of Ouchi and Hata, because the use of a sample and hold / gain control circuit is advantageous in that it does not give rise to such deterioration of a signal or decrease of the information amount of image data (Para 0105 of Shiga).

As to claim 7, this differs from claim 3 only in that claim 3 is an apparatus claim whereas claim 7 is a method. Thus claim 7 is analyzed as previously discussed with respect to claim 3 above.

6. Claims 4 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ouchi (US Patent # 5,867,213) in view of Hata (US Patent # 6,721,006) as applied to claims 1 and 5 above, and further in view of Nagata (US Patent # 6,366,228).

As to claim 4, Ouchi and Hata teach the limitation "A/D converter". Ouchi and Hata do not teach an A/D converter is configured of a plurality of analog comparators. Nagata (see fig. 8) teaches an A/D converter configured of a plurality of analog comparators (CMP1 – 4)(Col. 12, lines 24 – 53). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided an A/D converter with a plurality of analog comparators taught by Nagata to the A/D converter of Ouchi and Hata, because the use of analog comparators reduces the manufacturing cost and power (Col. 18, lines 43 - 55).

As to claim 8, this differs from claim 4 only in that claim 4 is an apparatus claim whereas claim 8 is a method. Thus claim 8 is analyzed as previously discussed with respect to claim 4 above.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Inquiries***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher K. Peterson whose telephone number is


Art Unit: 2622

571-270-1704. The examiner can normally be reached on Monday - Friday 6:30 - 4:00 EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NgocYen Vu can be reached on 571-272-7320. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

CKP  
13 August 2007

  
NGOC-YEN VU  
SUPERVISORY PATENT EXAMINER